

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A semiconductor device including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

an external lead, which is electrically separated from said internal connection member,
for connecting the semiconductor device to an external device,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips.

2. (Original) The semiconductor device according to claim 1, wherein, the plurality of semiconductor chips comprise a first semiconductor chip and a second semiconductor chip, and

the internal connection member comprises:

a first connection member for connecting the first semiconductor chip to the conductive portion; and

a second connection member for connecting the second semiconductor chip to the conductive portion.

3. (Original) The semiconductor device according to claim 2, wherein, the non-conductive layer has a circuit formed thereon, and

the conductive portion comprises a conductive subportion which is connected to the first connection member and a conductive subportion which is connected to the second connection member,

the conductive subportions being in electrical conduction by way of the circuit formed on the non-conductive layer.

4. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 3, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips, and

the plurality of semiconductor chips comprise a first semiconductor chip and a second semiconductor chip, and

the internal connection member comprises:

a first connection member for connecting the first semiconductor chip to the conductive portion; and

a second connection member for connecting the second semiconductor chip to the conductive portion, and

the non-conductive layer has a circuit formed thereon, and

the conductive portion comprises a conductive subportion which is connected to the first connection member and a conductive subportion which is connected to the second connection member,

the conductive subportions being in electrical conduction by way of the circuit formed on the non-conductive layer,

wherein the non-conductive layer includes a circuit formed on each of two principal faces thereof.

5. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 2, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips,

wherein, the plurality of semiconductor chips comprise a first semiconductor chip and a second semiconductor chip, and

the internal connection member comprises:

a first connection member for connecting the first semiconductor chip to the conductive portion; and

a second connection member for connecting the second semiconductor chip to the conductive portion.

wherein the non-conductive layer is layered between the first semiconductor chip and the second semiconductor chip.

6. (Original) The semiconductor device according to claim 5, wherein the first semiconductor chip and the second semiconductor chip are disposed so that the respective principal faces of the first and second semiconductor chips having the integrated circuits formed thereon face away from each other,

with the non-conductive layer being interposed between the other principal faces of the first and second semiconductor chips.

7. (Original) The semiconductor device according to claim 6, wherein the conductive subportion which is connected to the first connection member is formed on a principal face of the non-conductive layer which is oriented in the same direction as the principal face of the first semiconductor chip on which the integrated circuit is formed.

8. (Original) The semiconductor device according to claim 1, wherein the non-conductive layer is a mount on which the plurality of semiconductor chips are placed.

9. (Original) The semiconductor device according to claim 1, wherein the conductive portion is formed by plating, with a conductive material, a portion of the non-conductive layer that lies outside of an outer contour of the plurality of semiconductor chips when the plurality of semiconductor chips and the non-conductive layer are layered in place.

10. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 9, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and
an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips, and

wherein the conductive portion is formed by plating, with a conductive material, a portion of the non-conductive layer that lies outside of an outer contour of the plurality of semiconductor chips when the plurality of semiconductor chips and the non-conductive layer are layered in place,

wherein the conductive material is a metal.

11. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 9, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and
an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips, and

wherein the conductive portion is formed by plating, with a conductive material, a portion of the non-conductive layer that lies outside of an outer contour of the plurality of semiconductor chips when the plurality of semiconductor chips and the non-conductive layer are layered in place,

wherein the portion of the non-conductive layer that lies outside of the outer contour of the plurality of semiconductor chips is a protrusion from the non-conductive layer.

12. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 9, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips, and

wherein the conductive portion is formed by plating, with a conductive material, a portion of the non-conductive layer that lies outside of an outer contour of the plurality of semiconductor chips when the plurality of semiconductor chips and the non-conductive layer are layered in place,

wherein, the plurality of semiconductor chips and the non-conductive layer are encased in a package,

the non-conductive layer further includes

a plurality of supporting legs for stabilizing to the package a portion of the non-conductive layer on which the plurality of semiconductor chips are placed,

the plurality of supporting legs being connected to one another by a bridge, and

the portion of the non-conductive layer that lies outside of the outer contour of the plurality of semiconductor chips forms the bridge.

13. (Currently amended) ~~[[The]]~~ A semiconductor device according to claim 1, including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the conductive portion provided on the non-conductive layer,

wherein the conductive portion provided on the non-conductive layer only mediates internal connection between the integrated circuits formed on the plurality of semiconductor chips, and

wherein the conductive portion is composed of a conductive piece embedded in an aperture formed through a portion of the non-conductive layer that lies outside of an outer contour of the plurality of semiconductor chips when the plurality of semiconductor chips and the non-conductive layer are layered in place.

14. (Original) The semiconductor device according to claim 5, wherein, the first connection member is composed of a conductive piece embedded in an aperture formed through the first semiconductor chip,

the second connection member is composed of a conductive piece embedded in an aperture formed through the second semiconductor chip,

the first connection member and the second connection member are formed in positions which coincide when the first semiconductor chip and the second semiconductor chip are layered in place, and

the conductive portion comprises conductive pieces embedded in apertures formed through portions of the non-conductive layer that come in contact with the first connection member and the second connection member, respectively, when the first semiconductor chip and the second semiconductor chip are layered in place.

15. (Original) The semiconductor device according to claim 13 or 14, wherein the conductive pieces comprised by the conductive portion are metal pieces.

16. (Original) The semiconductor device according to claim 14, wherein the conductive piece composing the first connection member is a metal piece.

17. (Original) The semiconductor device according to claim 5, wherein, the first connection member is composed of a conductive piece embedded in an aperture formed through the first semiconductor chip,

the second connection member is composed of a conductive piece embedded in an aperture formed through the second semiconductor chip, and

the conductive portion comprises:

a conductive subportion composed of a conductive piece embedded in an aperture formed through a portion of the non-conductive layer that comes in contact with the first connection member when the first semiconductor chip and the second semiconductor chip are layered in place, and

a circuit for electrically connecting the conductive subportion to a portion of the non-conductive layer that comes in contact with the second connection member when the first semiconductor chip and the second semiconductor chip are layered in place.

18. (Original) The semiconductor device according to claim 2, wherein the first semiconductor chip is disposed so that a principal face of the first semiconductor chip not bearing the integrated circuit opposes one of principal faces of the non-conductive layer, and

the second semiconductor chip is disposed so that a principal face of the second semiconductor chip having the integrated circuit formed thereon opposes the other principal face of the non-conductive layer.

19. (Original) The semiconductor device according to claim 18, wherein the second connection member is a metal bump provided on the second semiconductor chip,

the conductive portion including:

a conductive subportion embedded in an aperture formed through a portion of the non-conductive layer that comes in contact with the bump when the second semiconductor chip and the non-conductive layer are layered in place, and

a circuit, formed on the principal face of the non-conductive layer opposed by the first semiconductor chip, for electrically connecting the conductive subportion to the first connection member.

20. (Original) The semiconductor device according to claim 2, wherein, the second semiconductor chip is disposed so that a principal face of the second semiconductor chip not bearing the integrated circuit contacts a principal face of the non-conductive layer,

the semiconductor device further comprising:

a spacer having an outer contour which is smaller than an outer contour of the first semiconductor chip and the second semiconductor chip, the spacer being disposed on the principal face of the second semiconductor chip having the integrated circuit formed thereon, and

the first semiconductor chip is disposed so that a principal face of the first semiconductor chip not bearing the integrated circuit contacts an upper face of the spacer.

21. (Original) A semiconductor device including a plurality of layers of semiconductor chips having substantially the same outer contour, with an integrated circuit being formed on a principal face of each semiconductor chip, comprising:

a non-conductive layer having a first conductive portion and a second conductive portion provided thereon, and

an internal connection member for internally connecting the integrated circuits formed on the plurality of semiconductor chips via the first conductive portion provided on the non-conductive layer,

wherein the second conductive portion provided on the non-conductive layer is a terminal for connecting the integrated circuits formed on the plurality of semiconductor chips to an external circuit.